Uninterrupted Traffic Flow

Tangible Result Driver – Don Hillis,
Director of System Management

Missouri drivers expect to get to their destinations in a timely, uninterrupted manner. Congestion, changes in weather, work zones and highway incidents can all impact their travels. MoDOT works to ensure that motorists travel as efficiently as possible on the state system by better managing work zones, snow removal and highway incidents, and by using the latest technology to inform motorists of possible delays and available options. Better traffic flow means fewer crashes.

Uninterrupted Traffic Flow

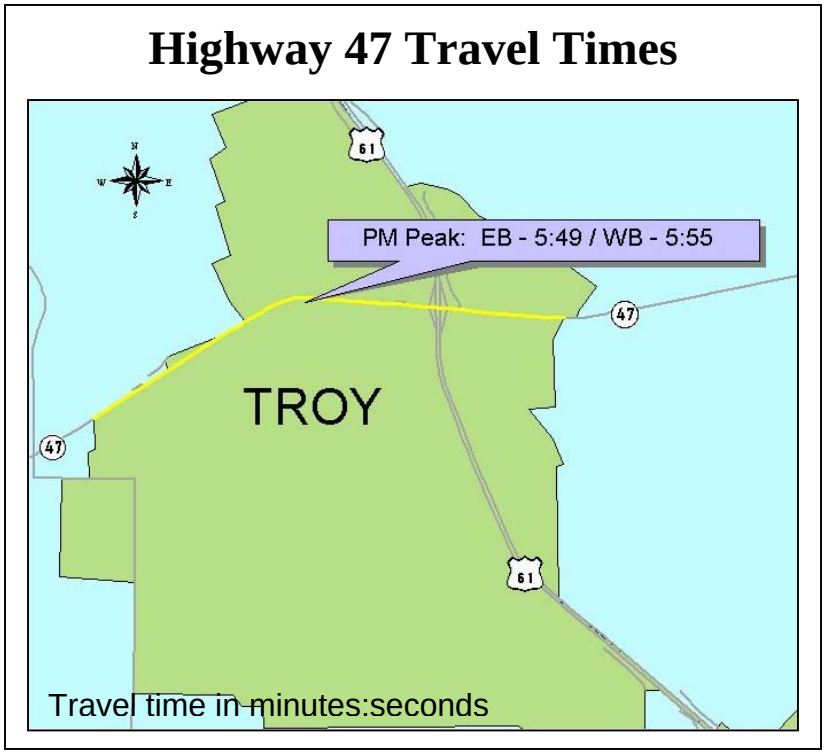
Average travel times on selected roadway sections

Result Driver: Don Hillis, Director of System Management
Measurement Driver: Eileen Rackers, State Traffic Engineer

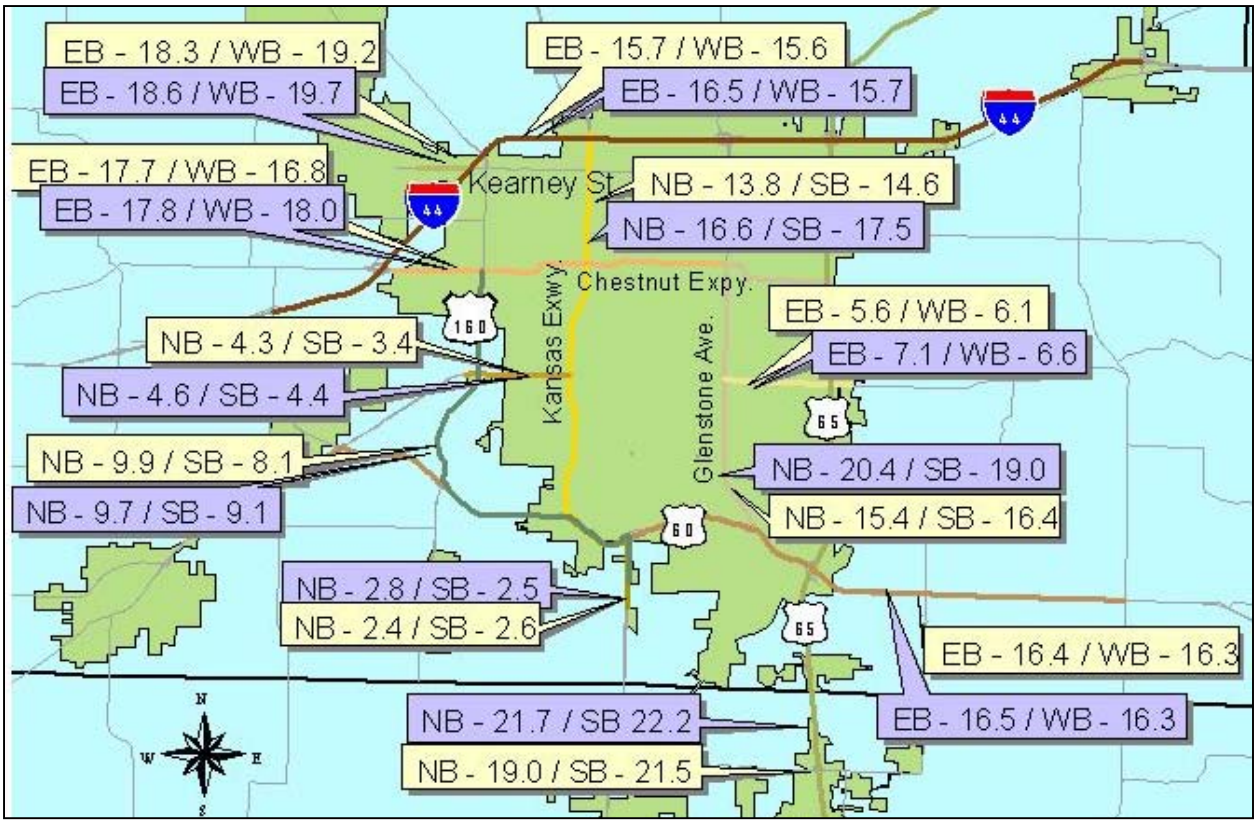
Purpose of the Measure:
This measure tracks average travel times on various roadway sections. Travel time is a tool for improving transportation system performance.

Measurement and Data Collection:
Various methods of data collection are currently used, including travel time software installed in official vehicles and manual travel time collection. Proposals are currently being solicited for traffic data and traveler information services. These services could provide traffic data, such as travel time, on up to 5,400 roadway miles. Additional data collection procedures are also being explored for the future, such as collecting travel time data through our partnership with Mobility Technologies, Inc. in the St. Louis area and determining travel times through Advanced Transportation Management System software at the Transportation Management Centers in the St. Louis, Kansas City and Springfield areas.

Improvement Status:
Currently, travel times are only available for a limited number of roadway segments. Future availability of additional travel time data will allow a more comprehensive approach to reducing average travel times. Efforts will be focused on roadways with excessive or increasing travel times. The desired trend is a reduction in average travel times.



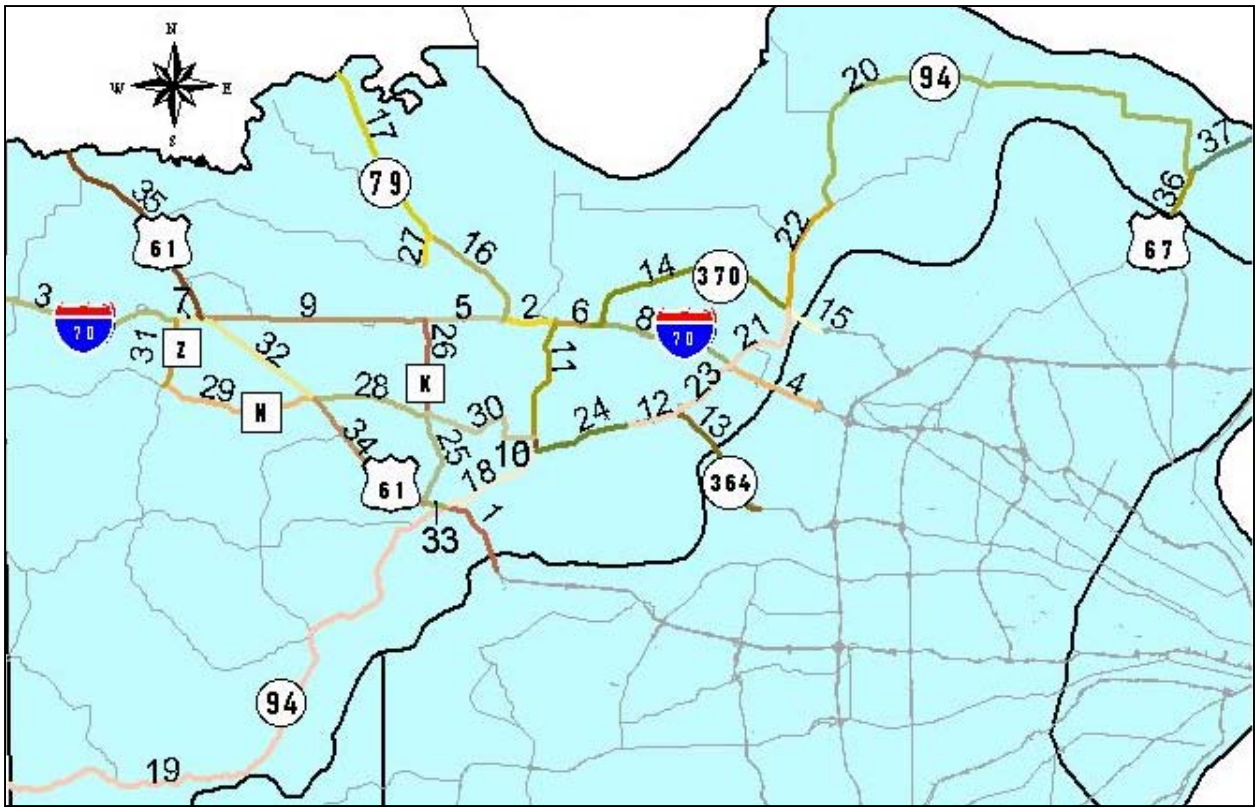
Springfield Area Travel Times



Peak travel time in minutes.

AM	PM

St. Charles Area Travel Times



Segment Details for St. Charles Area

Segment	Length (miles)	Direction	AM Peak (min:sec)	PM Peak (min:sec)	Off Peak (min:sec)
1	3.286	EB	3 : 13	3 : 02	3 : 00
		WB	3 : 15	3 : 36	3 : 14
2	1.716	EB	3 : 07	1 : 34	1 : 34
		WB	1 : 26	2 : 46	1 : 28
3	6.05	EB	5 : 03	4 : 45	5 : 02
		WB	5 : 04	5 : 32	5 : 05
4	3.225	EB	3 : 30	3 : 00	2 : 47
		WB	3 : 18	3 : 13	3 : 11
5	2.627	EB	7 : 26	2 : 13	2 : 14
		WB	2 : 18	2 : 51	2 : 22
6	1.535	EB	1 : 22	1 : 21	1 : 17
		WB	1 : 19	2 : 19	1 : 18
7	1.027	EB	0 : 49	0 : 45	0 : 47
		WB	0 : 48	0 : 52	0 : 49
8	4.657	EB	4 : 15	4 : 14	4 : 10
		WB	4 : 01	4 : 37	4 : 08
9	7.338	EB	11 : 09	6 : 30	6 : 40
		WB	6 : 31	6 : 55	6 : 42
10	0.456	NB	1 : 01	0 : 52	1 : 09
		SB	0 : 35	0 : 40	1 : 10
11	4.04	NB	9 : 48	8 : 54	8 : 34
		SB	10 : 00	9 : 19	8 : 25
12	1.658	EB	2 : 04	1 : 45	1 : 45
		WB	1 : 52	3 : 20	2 : 02
13	4.521	EB	4 : 04	4 : 07	4 : 12
		WB	4 : 09	4 : 12	4 : 12

Segment	Length (miles)	Direction	AM Peak (min:sec)	PM Peak (min:sec)	Off Peak (min:sec)
14	7.894	EB	6 : 42	6 : 49	7 : 07
		WB	6 : 34	6 : 39	7 : 01
15	1.244	EB	1 : 22	1 : 00	1 : 34
		WB	1 : 16	1 : 22	1 : 25
16	4.032	NB	4 : 57	5 : 48	4 : 07
		SB	6 : 47	4 : 49	4 : 19
17	6.385	NB	5 : 32	5 : 46	5 : 32
		SB	5 : 48	5 : 40	5 : 20
18	3.749	EB	6 : 16	5 : 34	5 : 12
		WB	5 : 37	6 : 42	6 : 16
19	21.43	EB	28 : 07	28 : 04	27 : 58
		WB	29 : 13	26 : 37	28 : 37
20	18.36	EB	22 : 07	21 : 23	23 : 04
		WB	21 : 34	21 : 37	22 : 31
21	3.556	EB	9 : 04	9 : 33	10 : 52
		WB	8 : 22	10 : 34	10 : 54
22	3.944	EB	5 : 44	6 : 36	5 : 39
		WB	6 : 37	6 : 36	6 : 38
23	7.805	EB	5 : 12	5 : 33	5 : 17
		WB	5 : 34	5 : 12	4 : 12
24	3.172	EB	11 : 19	9 : 24	7 : 39
		WB	7 : 39	11 : 55	7 : 17
25	3.232	NB	4 : 30	7 : 10	4 : 38
		SB	5 : 37	5 : 09	5 : 15

Segment	Length (miles)	Direction	AM Peak (min:sec)	PM Peak (min:sec)	Off Peak (min:sec)
26	3.172	NB	5 : 18	8 : 27	6 : 54
		SB	6 : 28	7 : 39	6 : 25
27	1.003	NB	5 : 36	6 : 39	4 : 59
		SB	6 : 07	9 : 21	6 : 47
28	3.946	EB	7 : 16	8 : 15	7 : 44
		WB	7 : 45	10 : 24	7 : 15
29	5.382	EB	7 : 02	6 : 54	6 : 57
		WB	7 : 12	6 : 52	6 : 42
30	4.472	EB	7 : 16	10 : 31	7 : 41
		WB	8 : 04	6 : 25	7 : 04
31	2.519	NB	3 : 07	3 : 11	3 : 08
		SB	3 : 02	3 : 09	3 : 30
32	4.808	EB	6 : 18	5 : 58	6 : 26
		WB	5 : 13	6 : 32	5 : 45
33	0.765	EB	0 : 34	0 : 33	0 : 32
		WB	0 : 40	0 : 37	0 : 37
34	5.152	EB	5 : 25	5 : 02	4 : 55
		WB	5 : 09	7 : 09	5 : 47
35	7.377	NB	6 : 35	6 : 52	7 : 12
		SB	6 : 31	7 : 02	6 : 42
36	3.633	NB	3 : 04	3 : 10	3 : 02
		SB	3 : 04	3 : 07	3 : 25
37	2.102	NB	3 : 41	3 : 16	3 : 30
		SB	3 : 59	3 : 32	3 : 42

Uninterrupted Traffic Flow

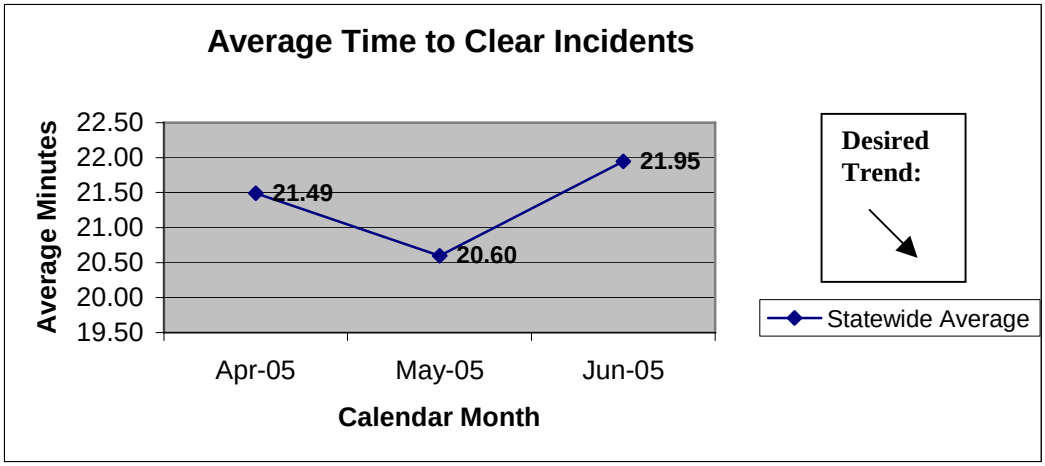
Average time to clear traffic incident

Result Driver: Don Hillis, Director of System Management
Measurement Driver: Dan Bruno, Traffic Studies and Corrections Engineer

Purpose of the Measure:
This measure will be used to determine what deficiencies or efficiencies exist in the clearance of incidents on the state highway system. A traffic incident is an unplanned event that creates a temporary reduction in the number of vehicles that can travel on the road.

Measurement and Data Collection:
Collection of data began March 1, 2005. Time of Arrival and the time for All Lanes Cleared are being recorded by Motorist Assist Operators and Traffic Management Center staff. Average time to clear traffic incident will be calculated from these recorded times.

Improvement Status:
This data shows that overall, the incident clearance times on urban freeways in Missouri is relatively constant. While the presence or absence of several large incidents can significantly impact the data on any given month, the overall trend should decrease due to deployment of incident management strategies. Regional working groups comprised of emergency responders and partners across I-44 and I-70 corridors are providing venues for discussion, training and expanded cooperative efforts for rapid incident clearance.



Uninterrupted Traffic Flow

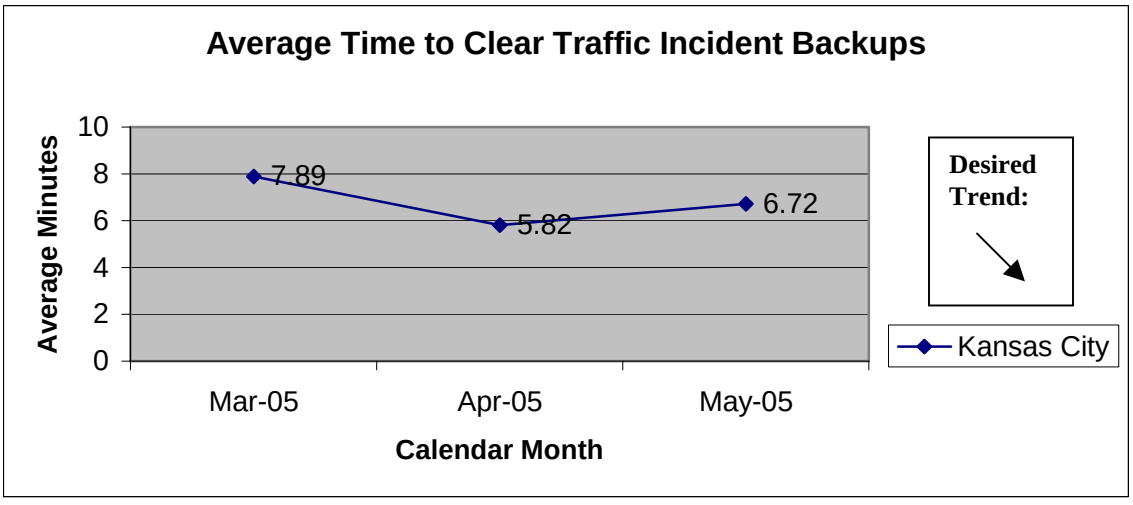
Average time to clear traffic backup from incident

Result Driver: Don Hillis, Director of System Management
Measurement Driver: Dan Bruno, Traffic Studies and Corrections Engineer

Purpose of the Measure:
This measure will track the amount of time it takes to return traffic flow back to normal after a traffic incident. A traffic incident is any unplanned event that creates a temporary reduction in the number of vehicles that can travel on the road.

Measurement and Data Collection:
"Lanes cleared" times and "clear backup" times are being recorded by the Traffic Management Center operators using the automated detection systems. District 4 (Kansas City) has devices already deployed with data being gathered along portions of I-435 and I-70. District 6 (St. Louis) will begin collecting data as advanced transportation management system devices and software come online over the next 6 to 9 months. Average time to clear traffic backup are calculated from these recorded times.

Improvement Status:
This data shows that congestion clearance times experienced a slight decline April, 2005. The presence or absence of large incidents in any single time period can cause significant fluctuations for a small data set. Additionally, the time of day that incidents are occurring will also directly affect the amount of traffic stuck in the queue, and therefore, the amount of time to clear that congestion. According to the FHWA, each minute of daytime lane blockage in urban areas can result in 4 minutes of residual congestion. Quick clearance activities will provide for reduced overall delay to motorists, particularly for incident during peak travel times.



**Note St. Louis will begin collecting data as advanced transportation management system devices and software come online over the next 6 to 9 months.*

Uninterrupted Traffic Flow

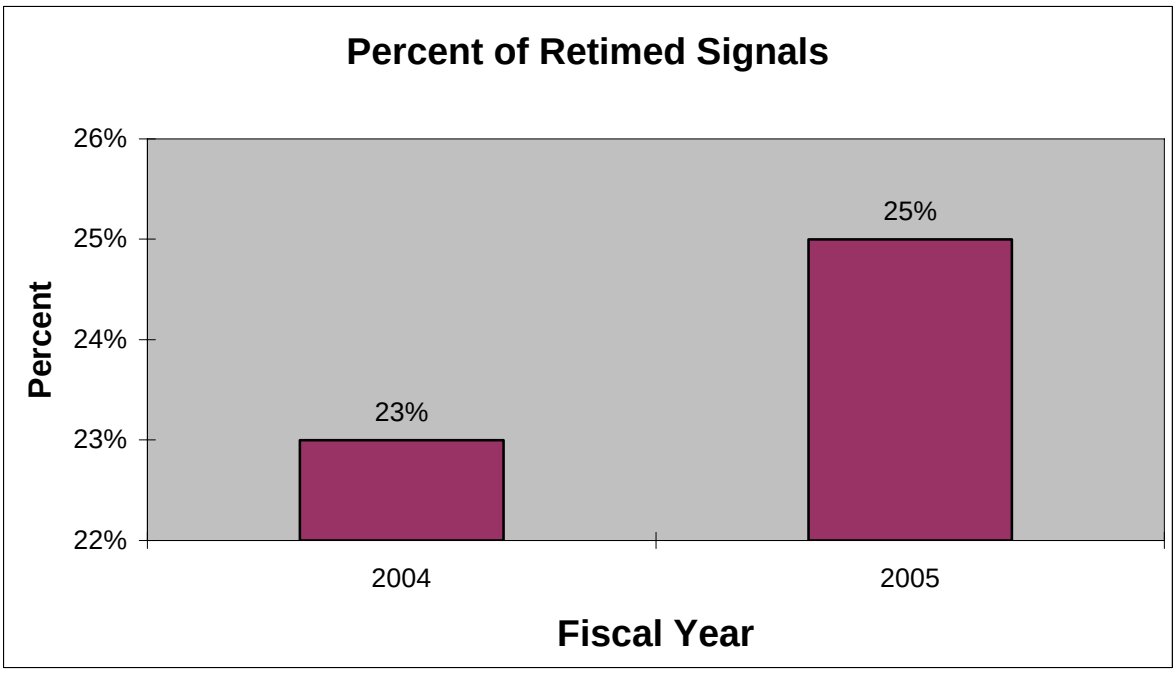
Percent of retimed signals

Result Driver: Don Hillis, Director of System Management
Measurement Driver: Julie Stotlemeyer, Signal and Lighting Engineer

Purpose of the Measure:
This measure tracks how well the department is adjusting the timing of the signal system to improve traffic flow.

Measurement and Data Collection:
Traffic engineers document retimed signal data on a timing sheet. The date of the retiming is recorded in the Transportation Management System database. Data is collected from the TMS database to generate the report. Fiscal year 2004 was the first year we monitored the number of signals that received timing revisions.

Improvement Status:
In fiscal year 2005, 25 percent of signals have been retimed, an increase of two percent. This increase is due to the documentation of the measure. Signals are often retimed based on observations or customer complaints. Signals usually operate under several timing plans. Only one portion of the timing plan may have been changed and captured as a retiming. Not every signal may need to be retimed every year, so one would not expect 100 percent of signals to be retimed.



Desired Trend: ↗

Uninterrupted Traffic Flow

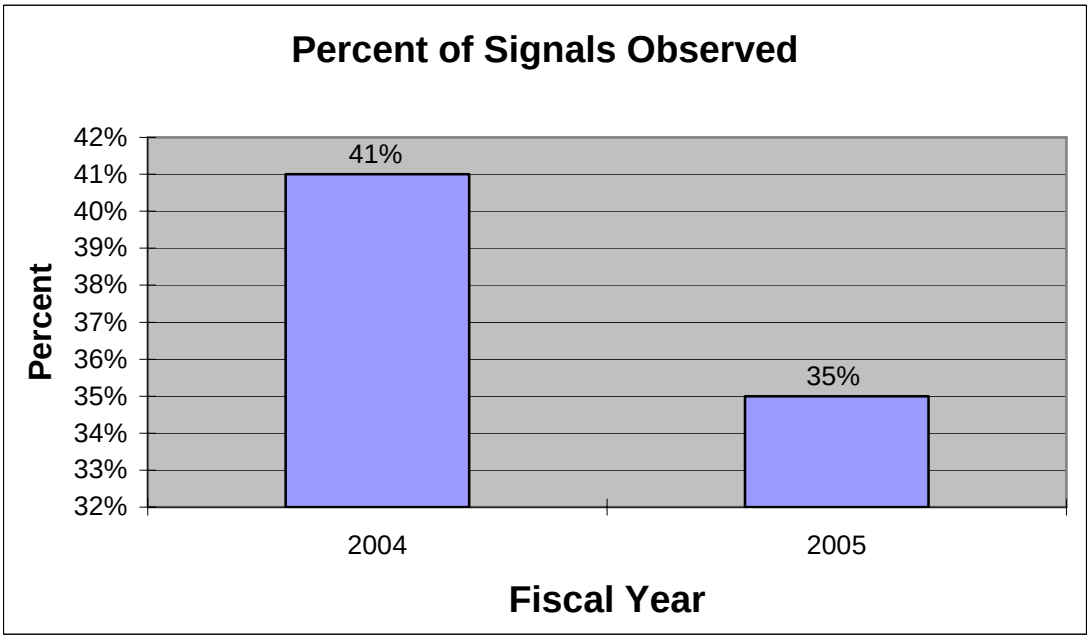
Percent of signals observed

Result Driver: Don Hillis, Director of System Management
Measurement Driver: Julie Stotlemeyer, Signal and Lighting Engineer

Purpose of the Measure:
This measure tracks how well the department is monitoring the signal system to improve traffic flow.

Measurement and Data Collection:
Traffic engineers document observed signal data on an observation sheet. The date of the signal observation will be recorded in the Transportation Management System database. Data is collected from the TMS database to generate the report. Fiscal year 2004 was the first year we monitored the number of signal observations completed. A complete signal observation requires personnel to monitor the signal during four different times of day: AM peak, Noon peak, PM peak and off peak.

Improvement Status:
In fiscal year 2005, 35 percent of signals have been observed, a decrease of six percent from fiscal year 2004. However, the total number of signals on the system increased by 12.5 percent for fiscal year 2005. All signals should be observed each year with adjustments made to the timing, if necessary, to improve uninterrupted traffic flow.



Desired Trend:

Uninterrupted Traffic Flow

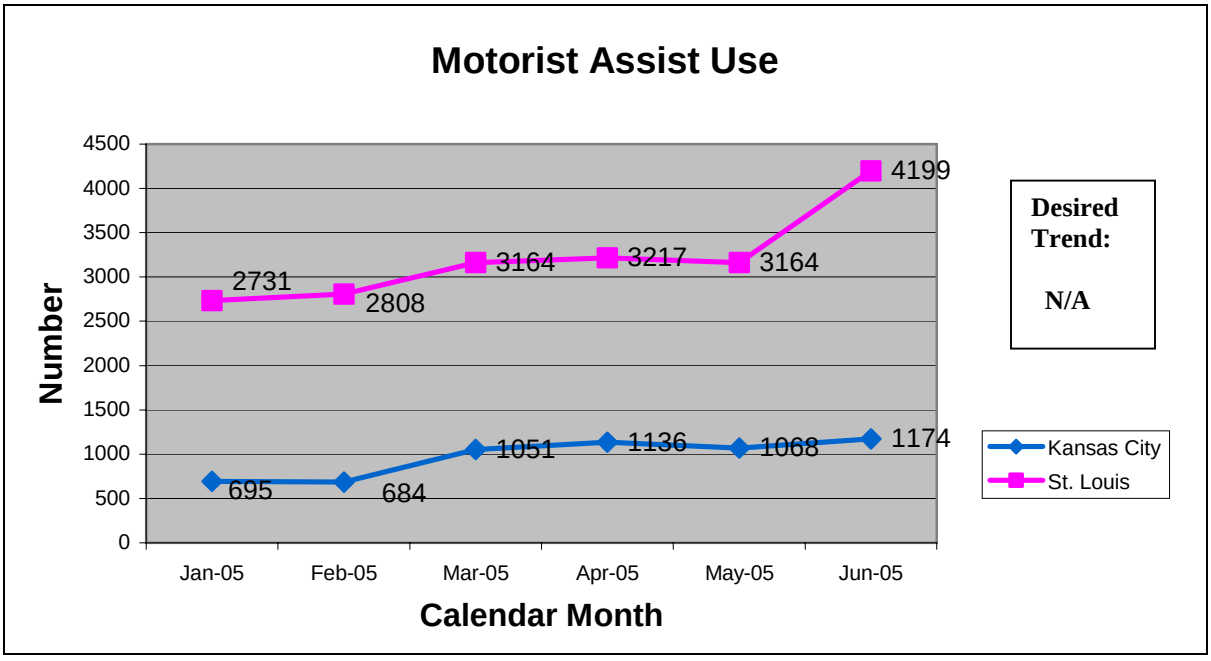
Number of customers assisted by the Motorist Assist program

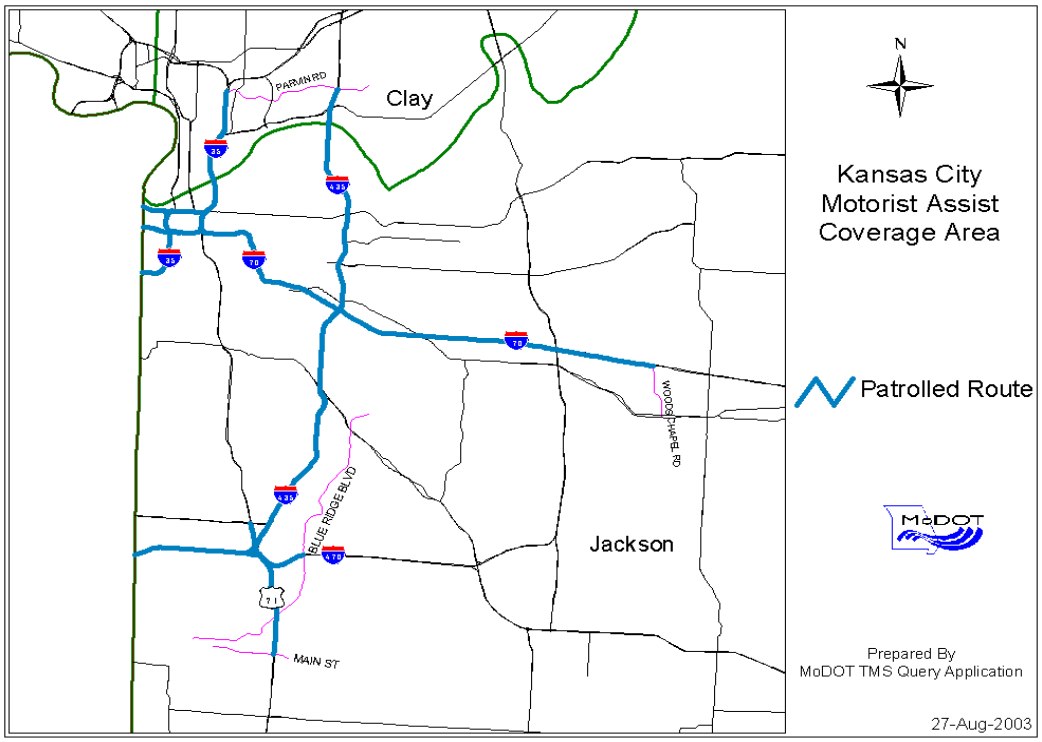
Result Driver: Don Hillis, Director of System Management
Measurement Driver: Dan Bruno, Traffic Studies and Corrections Engineer

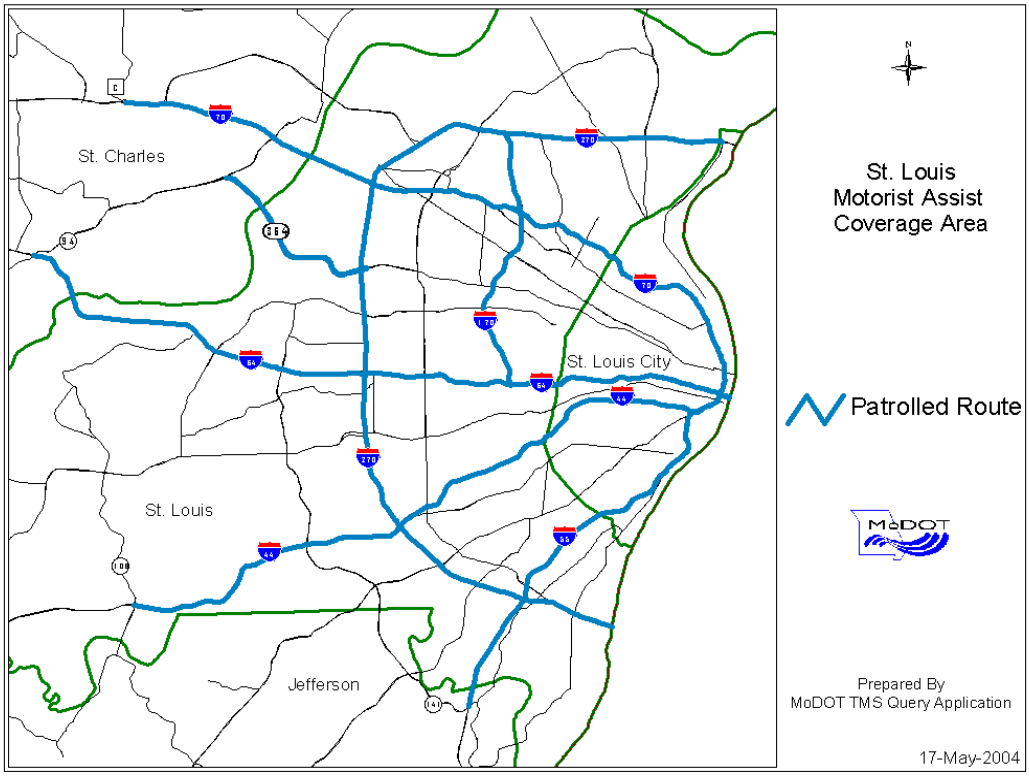
Purpose of the Measure:
This measure is used to gauge the use of the Motorist Assist programs. Incidents impact Missouri's transportation system capacity. An incident is any unplanned event that creates a temporary reduction in roadway capacity that, in turn, impedes normal traffic flow. The sooner an incident is removed, the sooner the highway system returns to normal capacity. Therefore, responding to and quickly addressing the incidents (crashes, flat tires, stalled vehicles, etc.) improves system performance.

Measurement and Data Collection:
Collection of monthly data began in January 2005. The Motorist Assist operators record each assist and then prepare monthly summary. St. Louis operators patrol approximately 160 freeway miles, while Kansas City operators patrol approximately 60 freeway miles.

Improvement Status:
This data demonstrates that the Motorist Assist program in both St. Louis and Kansas City is experiencing a routine increase in assists due to increased weather temperatures and roadway volumes. The sharp increase in assists in the St. Louis area is attributable to a spike in temperature and a period of recurring severe weather resulting in increased breakdowns and collisions. This data also demonstrates a typical pattern of increased assists during peak travel season.




Clay
PARMN RD
Jackson
BLUE RIDGE BLVD
WOODSWHEEL RD
MAIN ST
N
Kansas City
Motorist Assist
Coverage Area
Patrolled Route
MoDOT
Prepared By
MoDOT TMS Query Application
27-Aug-2003


St. Charles
St. Louis City
St. Louis
Jefferson
N
St. Louis
Motorist Assist
Coverage Area
Patrolled Route
MoDOT
Prepared By
MoDOT TMS Query Application
17-May-2004

Uninterrupted Traffic Flow

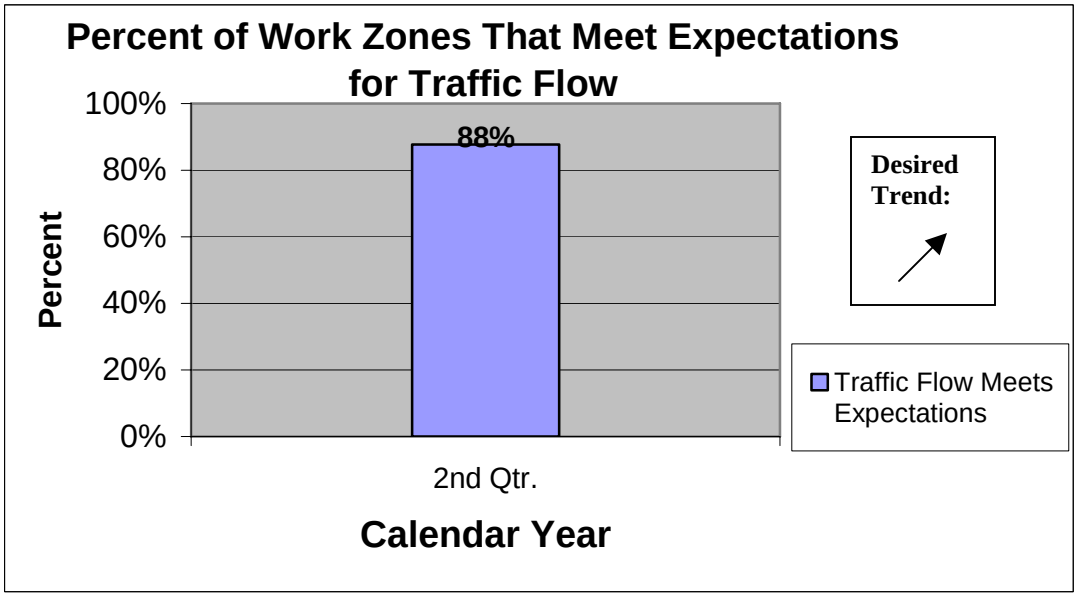
Percent of work zones that meet expectations for traffic flow

Result Driver: Don Hillis, Director of System Management
Measurement Driver: Scott Stotlemeyer, Technical Support Engineer

Purpose of the Measure:
This measure will help the department meet the expectations of MoDOT customers concerning traffic flow through work zones.

Measurement and Data Collection:
Using a formal inspection checklist, selected senior engineering staff of Construction and Materials, Maintenance, and Traffic are required to perform inspections on the flow of traffic in any work zones they travel through.

Improvement Status: This is the first quarter that results for this measure are being presented. The bar graph indicates the percent of work zones inspected by MoDOT engineering staff that received an acceptable overall rating for traffic flow through work zones. Because of the nature of work zones, traffic should slow down to some degree as it moves through a work zone. As we improve training and education on effective work zones and their management, we expect the percent of work zones receiving an acceptable rating to increase.



Uninterrupted Traffic Flow

Time to meet winter storm event performance objectives on major and minor highways

Result Driver: Don Hillis, Director of System Management
Measurement Driver: Tim Jackson, Technical Support Engineer

Purpose of the Measure:
This measure tracks the amount of time needed to meet the performance objectives in MoDOT's snow and ice removal efforts.

Measurement and Data Collection:
This data is collected in the Lotus Notes Winter Event database. This measurement will track the actual time involved in this process so improvements can be made. After each winter event, such as a snow or ice storm, personnel in the maintenance areas submit a report indicating how much time it took to clear snow from the major and minor highways. Data collection will begin after the first snowfall this winter for inclusion in the January 2006 Tracker. The objectives are to restore the major highways to a wet or dry condition as soon as possible after the end of the storm; to restore the higher volume (>1000 average daily traffic) minor highways to a wet or dry condition as soon as possible after the end of the storm; and to have the lower volume (<= 1000 average daily traffic) minor highways open to two-way traffic and treated with salt and/or abrasives at all critical areas such as intersections, hills and curves, as soon as possible after the end of the storm.

Improvement Status:

Measure is Under Development